WHAT IS CLAIMED IS:

1. An organic electroluminescence device comprising a pair of electrodes and a layer of an organic light emitting medium disposed between the pair of electrodes, wherein the layer of an organic light emitting medium comprises a mixed layer comprising (A) at least one compound selected from hole transporting compounds and (B) at least one compound selected from electron transporting compounds in amounts such that a ratio of an amount of component (A) to an amount of component (B) is in a range of 8:92 to 92:8 and an energy gap of the hole transporting compound represented by Eg1 and an energy gap of the electron transporting compound represented by Eg2 satisfy a relation:

$$Eg1 < Eg2.$$

2. An organic electroluminescence device according to Claim 1, wherein an ionization energy of the hole transporting compound represented by IP1 and an ionization energy of the electron transporting compound represented by IP2 satisfy a relation:

$$IP1 \leqq IP2$$

3. An organic electroluminescence device according to Claim 2, wherein an electron affinity of the hole transporting compound represented by Af1 and an electron affinity of the electron transporting compound represented by Af2 satisfy a relation:

$$Af1 \leqq Af2$$

and ΔEv given by $\Delta Ev = IP2 - IP1$ and ΔEc given by $\Delta Ec = Af2 - AF1$ satisfy a relation:

$$\Delta Ev \geqq \Delta Ec$$

4. An organic electroluminescence device according to Claim 2, wherein an electron affinity of the hole transporting compound represented by Af1 and an electron affinity of the electron transporting compound represented by Af2 satisfy a relation:

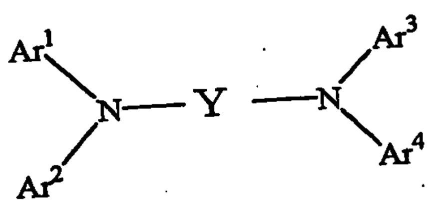
$$Af1 > Af2$$

and ΔEv given by $\Delta Ev = IP2 - IP1$ and ΔEc given by $\Delta Ec' = Af1 - AF2$ satisfy a relation:

$$\Delta Ev \geqq \Delta Ec'$$

5. An organic electroluminescence device according to Claim 1, wherein the hole transporting compound is an aromatic amine having condensed cyclic structures.

6. An organic electroluminescence device according to Claim 5, wherein the aromatic amine is represented by following general formula (1):

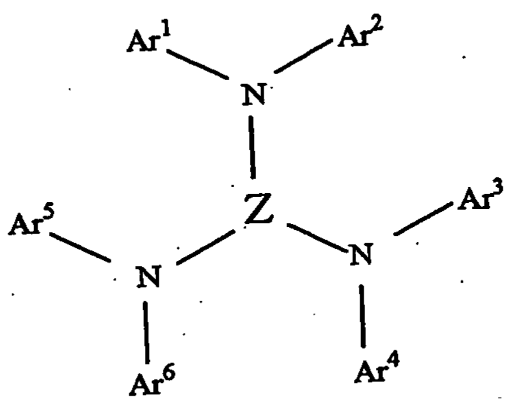


(1)

wherein Ar^1 to Ar^4 each independently represent a substituted or unsubstituted aromatic hydrocarbon group having 6 to 40 carbon atoms or a substituted or unsubstituted aromatic heterocyclic group having 3 to 40 carbon atoms, Y represents a substituted or unsubstituted aromatic residue group having 2 to 60 carbon atoms, at least one of the groups represented by

Ar^1 to Ar^4 and Y has a condensed cyclic group having 3 or more rings and a substituent in the groups represented by Ar^1 to Ar^4 and Y may form a ring with two groups selected from the groups represented by Ar^1 to Ar^4 and Y.

7. An organic electroluminescence device according to Claim 5, wherein the aromatic amine is represented by following general formula (2):



(2)

wherein Ar^1 to Ar^6 each independently represent a substituted or unsubstituted aromatic hydrocarbon group having 6 to 40 carbon atoms or a substituted or unsubstituted aromatic heterocyclic group having 3 to 40 carbon atoms, Z represents a substituted or unsubstituted aromatic residue group having 3 to 60 carbon atoms, at least one of the groups represented by Ar^1 to Ar^6 and Z has a condensed cyclic group having 3 or more rings and a substituent in the groups represented by Ar^1 to Ar^6 and Z may form a ring with two groups selected from the groups represented by Ar^1 to Ar^6 and Z.

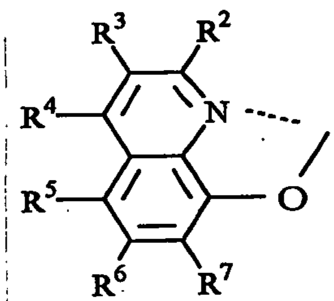
8. An organic electroluminescence device according to Claim 1, wherein the electron transporting compound is a heterocyclic compound having a nitrogen atom or a complex having a nitrogen atom.

9. An organic electroluminescence device according to Claim 8, wherein the complex having a nitrogen atom is represented by following general formula (3):

$$\mathrm{M\text{-}A_mB_n} \qquad (3)$$

wherein M represents a monovalent to trivalent metal, A represents a ligand having a nitrogen atom, B represents a ligand having no nitrogen atoms, **m** represents an integer of 1 to 4, **n** represents an integer of 0 to 2 and integers represented by **m** and **n** satisfy $\mathbf{m}+\mathbf{n} \leqq 4$.

10. An organic electroluminescence device according to Claim 9, wherein the ligand having a nitrogen atom is represented by following general formula (4):



(4)

wherein R^2 to R^7 each independently represent hydrogen atom, a halogen atom, hydroxyl group, a substituted or unsubstituted amino group, nitro group, cyano group, a substituted or unsubstituted alkyl group having 1 to 30 carbon atoms, a substituted or unsubstituted alkenyl group having 2 to 30 carbon atoms, a substituted or unsubstituted cycloalkyl group having 5 to 30 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 30 carbon atoms, a substituted or unsubstituted aromatic hydrocarbon group having 6 to 40 carbon atoms, a substituted or unsubstituted aromatic heterocyclic group having 3 to 40 carbon atoms, a substituted or

unsubstituted aralkyl group having 7 to 40 carbon atoms, a substituted or unsubstituted aryloxyl group having 6 to 40 carbon atoms, a substituted or unsubstituted alkoxycarbonyl group having 2 to 40 carbon atoms or carboxyl group and two groups selected from the groups represented by R^2 to R^7 may form a ring.

11. An organic electroluminescence device according to Claim 1, wherein the electron transporting compound is represented by following general formula (5):

$$A^1\text{-}L\text{-}A^2 \qquad (5)$$

wherein A^1 and A^2 each independently represent a substituted or unsubstituted monophenylanthryl group or a substituted or unsubstituted diphenylanthryl group and may represent a same group or different groups and L represents a single bond or a divalent bonding group; or by following general formula (6):

$$A^3\text{-}An\text{-}A^4 \qquad (6)$$

wherein An represents a substituted or unsubstituted anthracene residue group and A^3 and A^4 each independently represent a substituted or unsubstituted monovalent condensed aromatic cyclic group having 10 to 40 carbon atoms or a substituted or unsubstituted aryl group having no condensed cyclic structures and having 12 to 40 carbon atoms and may represent a same group or different groups.

12. An organic electroluminescence device according to Claim 1, wherein the electron transporting compound is a cyclic derivative having Si.

13. An organic electroluminescence device according to Claim 1, wherein the mixed layer in the layer of an organic light emitting medium further comprises (C) a fluorescent compound.

14. An organic electroluminescence device according to Claim 13, wherein the layer of an organic light emitting medium comprises component (A), component (B) and component (C) in amounts such that a ratio of a total amount by weight of component (A) and component (B) to an amount by weight of component (C) is in a range of 100:1 to 10:1.

15. An organic electroluminescence device according to Claim 1, wherein a layer of a chalcogenide, a metal halide or a metal oxide is disposed on a surface of at least one of the pair of electrodes.

16. An organic electroluminescence device according to Claim 1, wherein a mixed region of a reducing dopant and the electron transporting compound or a mixed region of an oxidizing dopant and the hole transporting compound is disposed on a surface of at least one of the pair of electrodes.

17. An organic electroluminescence device according to Claim 1, wherein a work function WF of an anode which injects holes into the layer of an organic light emitting medium and an ionization energy of the hole transporting compound IP1 satisfy a relation:

$$IP1 - WF \leqq 0.2 eV$$

18. An organic electroluminescence device comprising a pair of electrodes and a layer of an organic light emitting medium disposed between the pair of

electrodes, wherein the layer of an organic light emitting medium comprises a mixed layer comprising (A) at least one compound selected from hole transporting compounds and (B) at least one compound selected from electron transporting compounds and an energy gap of the hole transporting compound represented by Eg1 and an energy gap of the electron transporting compound represented by Eg2 satisfy a relation:

$$Eg1<Eg2$$

and holes are transported in the layer of an organic light emitting medium with the hole transporting compound.